

Hebel
for future living

Wall & Floor Panel Systems

Designed for Future Living



Wall Panel Systems

CSR Hebel Wall Panels are precast reinforced autoclaved aerated concrete (AAC) panels for construction of walls where load bearing is not required.

Hebel Wall Panels are designed to be used in either vertical or horizontal (preferred) applications in industrial or commercial construction. Hebel panels are available in stock sizes or can be custom manufactured to your project engineer's design specification.

A fire rating of up to four hours (240/240/240) is available for profiled wall panels of 125mm thickness or greater in either vertical or horizontal orientation. Adhesive is not required for fire performance as long as the panels have tongue & groove profile and span less than 3.0m. Hebel Adhesive must be applied to joints in a fire rated application for longer spans or where acoustic performance is required.



Wall Panel Systems

Finishing

Panels can be finished with a suitable vapour-permeable acrylic high build paint applied directly to the surface. This coating system is generally used on commercial applications where the bevelled edges of the panels are incorporated as a feature of the design.

Alternatively, Hebel SkimCoat and Hebel HighBuild have been designed to provide the perfect substrate for decorative coatings. Both have been specially formulated with a special acrylic polymer combined with washed, graded silica sand, cement and selected additives to enhance the application and workability of the mix for a consistent finish.

Below is a table showing the coating sequence for a variety of coating selections.

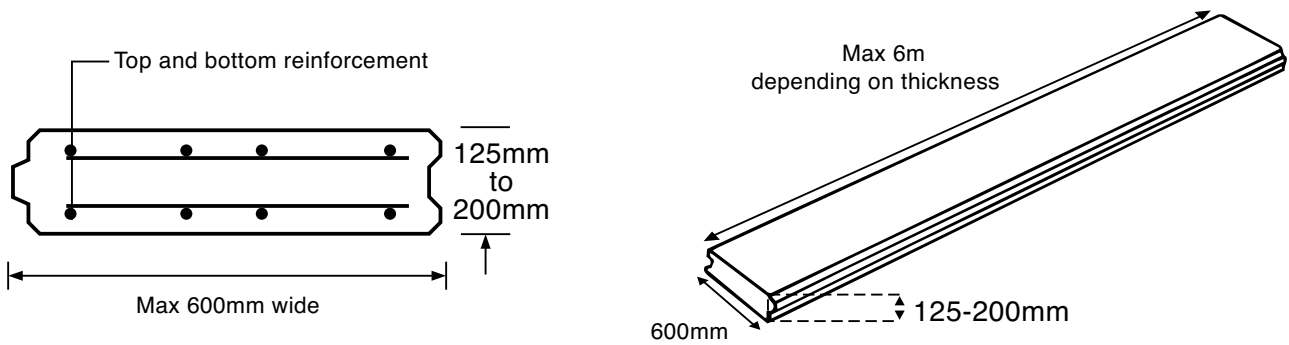


FINISHING SYSTEMS

Coating selection	Appearance	Coating sequence	Coating thickness	Application methods			Selection considerations	
				Render	Texture profile	Paint	For	Against
Texture profile SkimCoat render	Texture coating finishes from crisp uniform sand texture to an elegant circular scratch appearance	1. SkimCoat render 2. Primer 3. Texture profile 4. Two coats of acrylic high build paint	2-6mm	Hawk & trowel	Hawk & trowel, plastic float to finish	Roller/brush/spray	Fast application, good looking sharp texture profile, good flexibility & great weather resistance protection. Long term durability	Panels need to be fixed flat to achieve the best finish
HighBuild sponge finished render	Traditional solid plaster appeal	1. HighBuild render 2. Primer 3. Two coats of acrylic high build paint	4-12mm	Hawk & trowel, wood/polystyrene float to flatten & sponge float to finish		Roller/brush/spray	Provides a thick traditional solid plaster appearance, good impact resistance	Must be sponge finished perfectly to produce a uniform texture profile
Mediterranean bag finished SkimCoat render	Rough undulating sand swept appearance	1. SkimCoat render 2. Two coats of acrylic mediterranean texture	2-5mm	Hawk & trowel	Mitt application or roll-on to finish		Quick application. Possible semi-skilled workmanship	Panels need to be fixed flat to achieve the best finish Limited in appearance to bag finish
Texture coating and paint	Texture coating finishes from crisp uniform sand texture to an elegant circular scratch appearance	1. Primer 2. Texture profile 3. Two coats acrylic High build paint	1-3mm		Roll-on or hawk & trowel on or spray on to finish (dependent on texture profile selected)	Roller/brush/spray	Fast application, good flexibility and great weather resistance protection offering long term durability	Panels need to be fixed flat to achieve the best finish
High build paint	Finish appearance will match appearance and profile of the panel	1. Primer 2. Two coats of acrylic high build paint	0.1 - 0.3mm			Roller/brush/spray	Fast application	Hebel Patch may need to be used to fill any imperfection prior to paint application

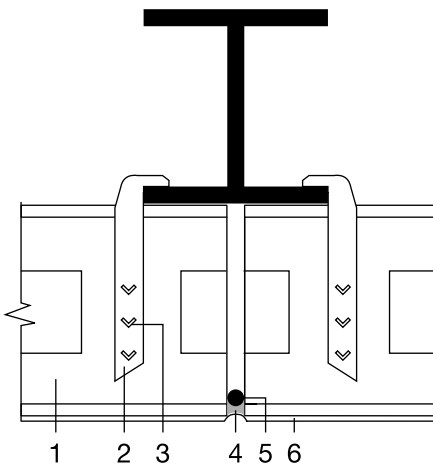
Technical data - Wall Panel Systems

Attachment of horizontal CSR Hebel wall and panels to steel structures.



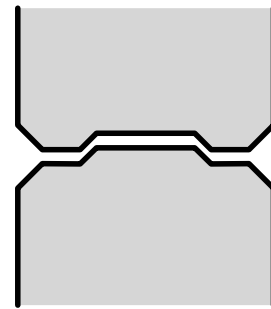
Note: No profile for panels less than 125mm

Tension Tie with 90° Head



1. CSR Hebel Horizontal Wall Panel
2. Tension Tie
3. Hebel 'V' nail, 140mm 2 per tie
4. Appropriate flexible Sealant
5. Backing Rod
6. Selected coating

Note: Connection capacity may limit panel length. Please contact Hebel Engineering Services **1800 369 448**



Standard tongue & groove profile

MAXIMUM CLEAR SPANS FOR WALL PANELS

Thickness (mm)	Recommended Maximum Clear Span (m)									
	Permissible Wind Load (kPa)									
	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00
100	3.00	3.00	3.00	3.00	2.85	2.70	2.55	2.40	2.30	2.20
125	4.50	4.50	4.50	4.25	4.00	3.85	3.70	3.55	3.45	3.30
150	5.85	5.85	5.85	5.45	5.20	4.95	4.75	4.60	4.45	4.30
175	5.85	5.85	5.85	5.85	5.85	5.85	5.75	5.55	5.35	5.20
200	5.85	5.85	5.85	5.85	5.85	5.85	5.85	5.85	5.85	5.85

- Note:
- The span values in this table have been determined such that the panel satisfies the span deflection ratio of L/180 for permissible loads
 - The span values do not include the connection capacity which may govern the design

Floor Panel Systems

CSR Hebel Floor Panels are reinforced AAC panels designed as loadbearing components in commercial, industrial and residential construction applications.



A preliminary thickness of the floor panel can be determined from the table on page 7 of this brochure. Contact your local distributor to confirm the selected floor panel thickness is adequate for the design parameters of span, load, deflection limit and fire resistance level rating.

After the panels are laid, reinforcing bars are placed between the panels in the recess and around the perimeter of the floor to form the ring anchor system in accordance with CSR Hebel specifications.

The joints and ring anchor sections should be lightly pre-wetted, filled with minimum 15 MPa concrete grout, and rodded to ensure complete and level filling of the notch and groove. A mix of C1:S3:A2 (5mm maximum coarse aggregate) with 150mm slump is usually suitable. The grout should completely cover the reinforcing.

The hardness of CSR Hebel floor panels is greater than the blocks. When ring anchors are placed accurately and mortar is poured carefully and screeded properly, the surface is level and smooth.

When Hebel panels are used in external floor areas such as patios or balconies, it is important to use an approved waterproofing membrane.

CSR Hebel floor panels provide an excellent, solid, stable base for tile, slate, marble and other hard surface flooring, including bathroom, laundry and other wet area applications.

The smooth flat surface is also perfectly suited to carpet, vinyl, timber boards, parquetry and decorative plywood flooring.

Panels in General

Panels should not be cut on site unless they are ordered as cuttable. It is preferred they are ordered from the factory at the desired length. Where panels have been cut the exposed reinforcing should be coated with CSR Hebel corrosion protection compound or an approved equivalent.

CSR Hebel panels are supplied ready for use. They can be simply and easily laid into position with only the joints needing to be mortared. Installation is therefore largely dry and generally no formwork or bracing is necessary. The reinforcing in the panels is custom designed for each project.

Panels installed on CSR Hebel blockwork or steel beams can offer a flooring system that can be laid down exceptionally fast. As well as providing the benefits of rapid construction, differential movement between floors and walls is minimised.

CSR Hebel can assist your project's engineer with product specifications to enable your engineer to design and layout panels, load bearing walls underneath structural elements and foundations.



Technical data - Floor Panel Systems

Thermal Insulation

200mm THICK CSR HEBEL FLOOR PANELS	
200mm clear of ground-supported by Hebel Block Work	
1 Indoor Air Film (heat flow down)	0.11
2 200mm Hebel Floor Panel	1.04
3 Outdoor Air Film	0.05
Total R	1.20

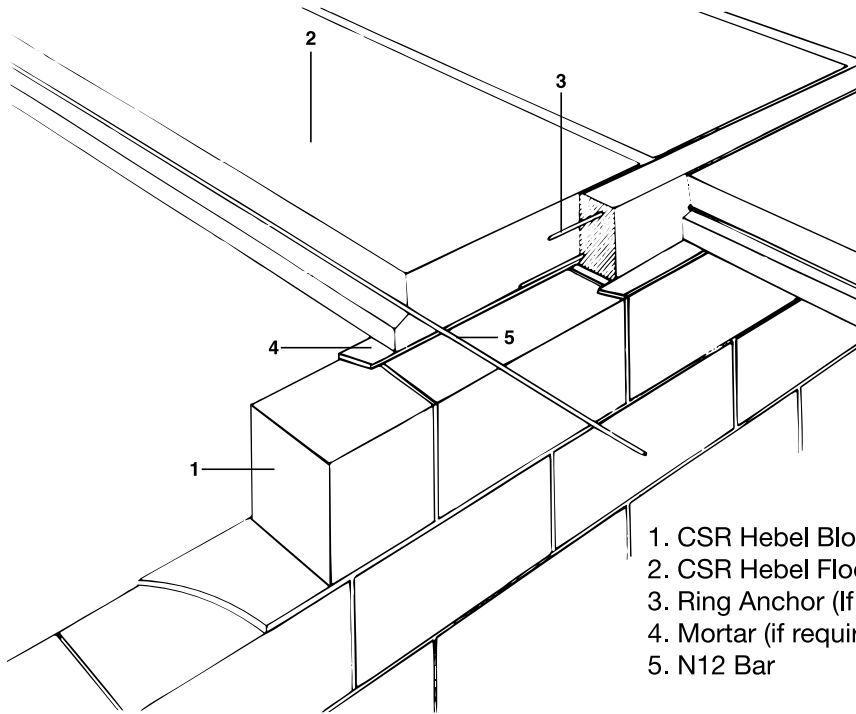
200mm thick CSR Hebel Floor Panels with carpet

200mm THICK CSR HEBEL FLOOR PANELS	
200mm clear of ground-supported by Hebel Block Work	
1 Indoor Air Film (heat flow down)	0.11
2 5mm Carpet	0.10
3 15mm Underfelt	0.30
4 200mm CSR Hebel Floor Panel	1.04
5 Outdoor Air Film	0.05
Total R	1.60

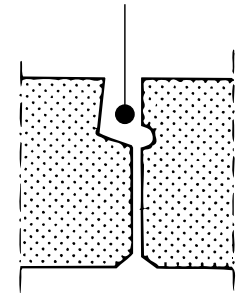
Reinforced Panels - Load Span Tables

The corrosion-protected, fully welded reinforcing mesh in Hebel Floor Panels provides the loadbearing strength for long spans. The recommended maximum spans and thicknesses are given in the tables opposite using working loads.

CSR HEBEL PANELS USING RING ANCHOR CONSTRUCTION ON LOAD BEARING INTERIOR WALL

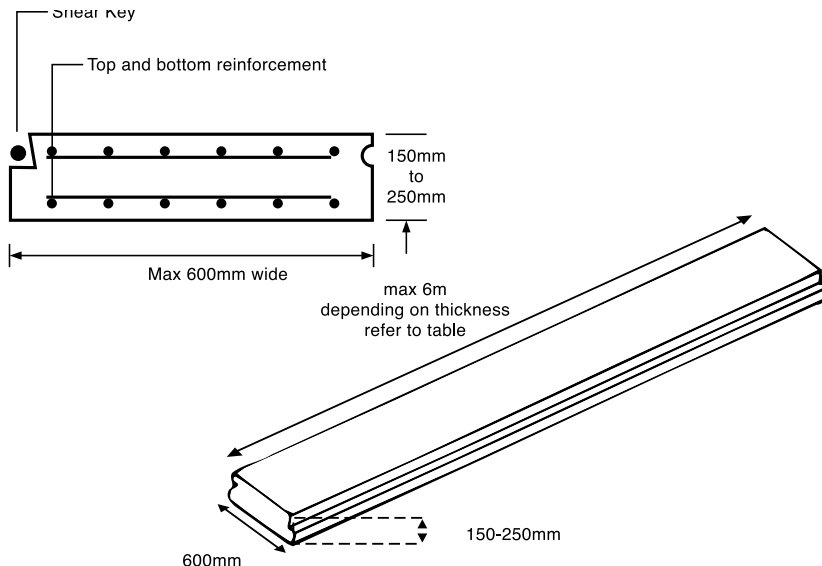


Position of reinforcement



CSR Hebel floor panels are supplied with a recess and slot groove.

1. CSR Hebel Blocks
2. CSR Hebel Floor Panels
3. Ring Anchor (If required)
4. Mortar (if required)
5. N12 Bar



Technical data - Floor Panel Systems

MAXIMUM CLEAR SPANS OF STANDARD FLOOR PANELS

Thickness (mm)	FRL (minutes)	Recommended Maximum Clear Span (m)											
		Live Load (kPa)											
		1.00	1.50			2.00			3.00		5.00		
		Superimposed Dead Load (kPa)											
		0.00	0.00	0.50	1.00	1.20	0.00	0.50	1.00	1.20	1.00	1.20	0.00
150	90	4.30	4.05	3.80	3.55	3.25*	3.90	3.65	3.45	3.10*	3.25	3.20	3.20
	120	4.15	3.90	3.60	3.40	3.30	3.70	3.45	3.25	3.20	3.10	3.05	3.05
	180	3.95	3.70	3.40	3.20	3.10	3.55	3.25	3.10	3.00	2.90	2.85	2.80
	240	3.80	3.60	3.30	3.05	3.00	3.40	3.15	2.95	2.85	2.75	2.70	2.65
175	90	5.00	4.75	4.45	4.20	3.90*	4.55	4.30	4.10	3.70*	3.85	3.80	3.80
	120	4.80	4.55	4.25	4.00	3.90	4.35	4.10	3.90	3.80	3.65	3.60	3.60
	180	4.55	4.30	4.00	3.75	3.70	4.10	3.85	3.65	3.60	3.45	3.40	3.40
	240	4.35	4.15	3.80	3.55	3.50	3.95	3.65	3.45	3.40	3.25	3.20	3.20
200	90	5.55	5.30	4.95	4.70	4.35*	5.10	4.80	4.55	4.15*	4.35	4.25	4.25
	120	5.30	5.05	4.70	4.45	4.35	4.85	4.55	4.35	4.25	4.10	4.05	4.05
	180	5.05	4.80	4.45	4.20	4.15	4.60	4.30	4.10	4.00	3.90	3.80	3.80
	240	4.85	4.60	4.25	4.00	3.95	4.40	4.10	3.90	3.80	3.70	3.65	3.65
225	90	5.80	5.75	5.40	5.10	4.80*	5.50	5.20	5.00	4.60*	4.75	4.65	4.65
	120	5.70	5.45	5.15	4.85	4.75	5.25	4.95	4.75	4.65	4.50	4.45	4.45
	180	5.45	5.25	4.90	4.65	4.55	5.05	4.75	4.50	4.45	4.30	4.20	4.20
	240	5.25	4.95	4.70	4.45	4.35	4.80	4.55	4.30	4.25	4.10	4.00	4.00
250	90	5.80	5.80	5.80	5.50	5.20*	5.80	5.60	5.35	4.95*	5.10	5.05	5.05
	120	5.80	5.80	5.55	5.25	5.15	5.65	5.35	5.10	5.05	4.90	4.80	4.80
	180	5.80	5.65	5.35	5.05	4.95	5.45	5.15	4.90	4.85	4.70	4.60	4.60
	240	5.65	5.45	5.10	4.85	4.75	5.25	4.95	4.70	4.60	4.45	4.40	4.40

Notes:

- These tables have been based on testing carried out by the CSIRO, as reported in the CSIRO Fire Opinion No. FCO-I081. In addition, the cover reinforcement varies from 20mm to 39mm.
- The span values in this table have been determined such that the panel satisfies the long-term span deflection ratio of L/250 in every case except '*' which denotes L/600 long-term deflection.